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Claim 18 has been amended as follows:

18. (Amended) A thermal bubble inkjet head having [symmetrical] heaters and a rapid ink refill mechanism according to claim 11, wherein a ring-shaped heater is positioned in said primary ink chamber.

Claim 19 has been amended as follows:

19. (Amended) A thermal bubble inkjet head having [symmetrical] heaters and a rapid ink refill mechanism according to claim 18, wherein said inkjet orifice is formed in said primary ink chamber opposite to said ring-shaped heater.

Claim 20 has been amended as follows:

20. (Amended) A thermal bubble inkjet head having [symmetrical] heaters and a rapid ink refill mechanism according to claim 11, wherein said inkjet head is a monolithic head.

REMARKS

Thorough examination and careful review of the application by the Examiner is noted and appreciated.

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Based on the foregoing, the Applicants respectfully submit that all of the pending claims, i.e. claims 1-20, are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version With Markings To Show Changes Made".

In the event that the present invention is not in a condition for allowance for any other reasons, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In The Claims

Claim 11 has been amended as follows:

11. (Amended) A thermal bubble inkjet head having off-shooter heaters and a rapid ink refill mechanism comprising:

a silicon substrate having a top surface and a bottom surface;

a first and a second insulating material layer of at least 1000 Å thick on said top and bottom surfaces;

a funnel-shaped manifold formed in said second insulating material layer and said silicon substrate;

two spaced-apart heaters formed on said first insulating material layer on said top surface;

two interconnects formed of a conductive metal each in electrical communication with one of said two spaced-apart heaters;

a third insulating material layer on top of said two spaced-apart heaters and said first insulating material layer;

a first photoresist layer of at least 2000Å thick on top of said third insulating material layer;

a primary and an auxiliary ink chamber formed in said first photoresist layer in fluid communication with each other and with said funnel-shaped manifold;

a metal seed layer on said first photoresist layer and an inkjet orifice formed in said metal seed layer; and

a Ni layer on top of said metal seed layer with an aperture formed therein in fluid communication with said inkjet orifice.

Claim 12 has been amended as follows:

12. (Amended) A thermal bubble inkjet head having heaters and a rapid ink refill mechanism according to claim 11, wherein said first photoresist layer preferably has a thickness of at least 5000Å.

Claim 13 has been amended as follows:

13. (Amended) A thermal bubble inkjet head having heaters and a rapid ink refill mechanism according to claim 11, wherein said inkjet orifice is formed in close proximity to said ring-shaped heater electrode.

Claim 14 has been amended as follows:

14. (Amended) A thermal bubble inkjet head having heaters and a rapid ink refill mechanism according to claim 11, wherein said first and second insulating material layers are a SiO_2 layer or a Si_3N_4 layer.

Claim 15 has been amended as follows:

15. (Amended) A thermal bubble inkjet head having heaters and a rapid ink refill mechanism according to claim 11, wherein said two spaced-apart heaters are formed of TaAl.

Claim 16 has been amended as follows:

16. (Amended) A thermal bubble inkjet head having heaters and a rapid ink refill mechanism according to claim 11, wherein said metal seed layer is deposited of Cr or Ni.

Claim 17 has been amended as follows:

17. (Amended) A thermal bubble inkjet head having heaters and a rapid ink refill mechanism according to claim 11, wherein one of said two spaced-apart heaters are positioned in said auxiliary ink chamber.

Claim 18 has been amended as follows:

18. (Amended) A thermal bubble inkjet head having heaters and a rapid ink refill mechanism according to claim 11, wherein a ring-shaped heater is positioned in said primary ink chamber.

Claim 19 has been amended as follows:

19. (Amended) A thermal bubble inkjet head having heaters and a rapid ink refill mechanism according to claim 18, wherein said inkjet orifice is formed in said primary ink chamber opposite to said ring-shaped heater.

Claim 20 has been amended as follows:

20. (Amended) A thermal bubble inkjet head having heaters and a rapid ink refill mechanism according to claim 11, wherein said inkjet head is a monolithic head.